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**(54) FABRICATION OF SEMICONDUCTOR DEVICE**

(57) Abstract:

**PURPOSE:** To shorten the fabrication process of semiconductor device, when epitaxial growth of silicon is conducted selectively by irradiating a silicon substrate with a molecular beam of silicon using a solid source, by simultaneously irradiating the silicon substrate with a molecular beam of solid halide compound.

**CONSTITUTION:** Silicon oxide 12 is deposited on an n+ type silicon substrate 11 and then an opening 13 is made therein. The silicon substrate 11 is then set on a rotary substrate heating table 2 in a growth chamber 1. Subsequently, the silicon substrate 11 is irradiated simultaneously with molecular beams of silicon, P type impurities and a solid halide compound, i.e., XeF<sub>2</sub> (or XeF<sub>4</sub>) by means of an E gun 3 for Si, a K cell 4 and a K cell 5 for solid halide compound. Consequently, silicon is grown selectively and an epitaxial film 14 is formed at the opening 13.

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